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The Nation's Wet Spot

S. Elwynn Taylor

Iowa State University, setaylor@iastate.edu

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Abstract

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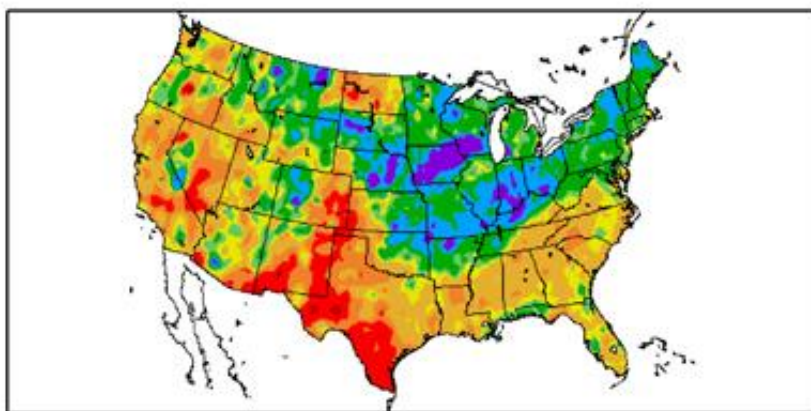
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June 14, 2008

By Elwynn Taylor, Department of Agronomy

It only takes a glance at the year's (water year begins in October) precipitation map to identify the region of ABNORMAL wetness. The record setting floods of 2008 are no surprise in light of the records. If it seems that high water years in the Midwest are increasingly common since about 1970; they are.

Percent of Normal Precipitation (%)
10/1/2007 – 6/12/2008



Generated 6/13/2008 at HPRCC using provisional data.

NOAA Regional Climate Centers

The 2008 floods have arrived earlier than did the floods of 1993 and in many cases the record high flood levels of 1993 have been surpassed. Also the 2008 event is more wide spread in the Midwest. The 1993 floods became serious in July and continued into August, past the date when corn will vigorously develop new and extensive root systems resulting in greatly reduced corn yields in every county of Iowa (only three reached 100 bushels per acre levels).

Flooding is more extensive in 2008 than it was by June 10 in 1993. The very wet conditions of 2008 in the Ohio River Valley and southern Missouri were mainly in March and April. The moisture in the north was mainly in May and June 2008. The extreme moisture of 1993 was mainly in July and August.

The Climate has Changed

The Midwest receives about 10 percent more annual precipitation since 1980 than was received before 1970. This increase has effectively doubled the annual stream flow in much of the region. Accordingly rivers are more often over their banks. In the 40 years up to 1970 there were two "high" water years. In the subsequent 40 years there were 12.

Accordingly an event that might have been expected once every 200 years in the past would be expected every 33 years or so under current climate conditions. Rivers and streams across the western Corn Belt have responded to the changing climate.

Storm System Features

The Bermuda High is a consistent and persistent feature of summer. It is the primary force moving moisture into the Midwest and should it fail to develop, wide spread drought is the result. In 2008 an "early arriving" Bermuda High together with a Colorado Low (that has been late migrating to a more typical summer location in Canada) resulted

in a much stronger than usual flow of moist air into the Midwest (RI, or Reman Index). The Jet stream associated with the Low system, also not a typical spring resident of the High Plains, provided the necessary impetus for extensive storms to develop.

There has been a gradual migration of the Low toward a more typical summer location in Canada. The extreme cold and snow in the state of Washington and the extreme storms of the Midwest will likely diminish when the Low pressure system diminishes or moves.

Similar conditions existed in 1947, a year with many record high flood reports followed by severe drought in the Corn Belt. 1983 was also similar with a very wet spring and a harsh dry summer. The chance of changing to drought conditions appears to be about 25 percent and to the warm and dry side of usual (sufficient to reduce Cornbelt yields to below trend) is about 62 percent.

Likely Yield Impacts

The sum of factors (including the long range forecasts from the [National Weather Service](#)) indicate that 2008 may be an extreme year. The U.S. corn yield is most likely to be 148 bushels per acre, and the chance of wide-spread drought remains higher than average at slightly less than one chance in three. However, extremes are likely during the coming years and a somewhat below trend harvest in 2008 is, at this time, expected.

Elwynn Taylor has produced a presentation [Floods 2008](#), that explains why Iowa is experiencing the current weather pattern, the forecast for the rest of the 2008 crop season and what impact weather is having on crop yield forecasts.

Elwynn Taylor is a professor with responsibilities for developing and implementing extension education and information programs in agricultural climatology.

Category:

Tags:

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S Taylor *Professor*

~~Dr. S. Elwynn Taylor --- Agricultural Meteorologist

Dr. Taylor is well known for his analysis of weather influence on the Midwest. He is widely recognized for his clear explanations of the complexities of long-term weather variability. Dr. Taylor is the Extension Climatologis...

